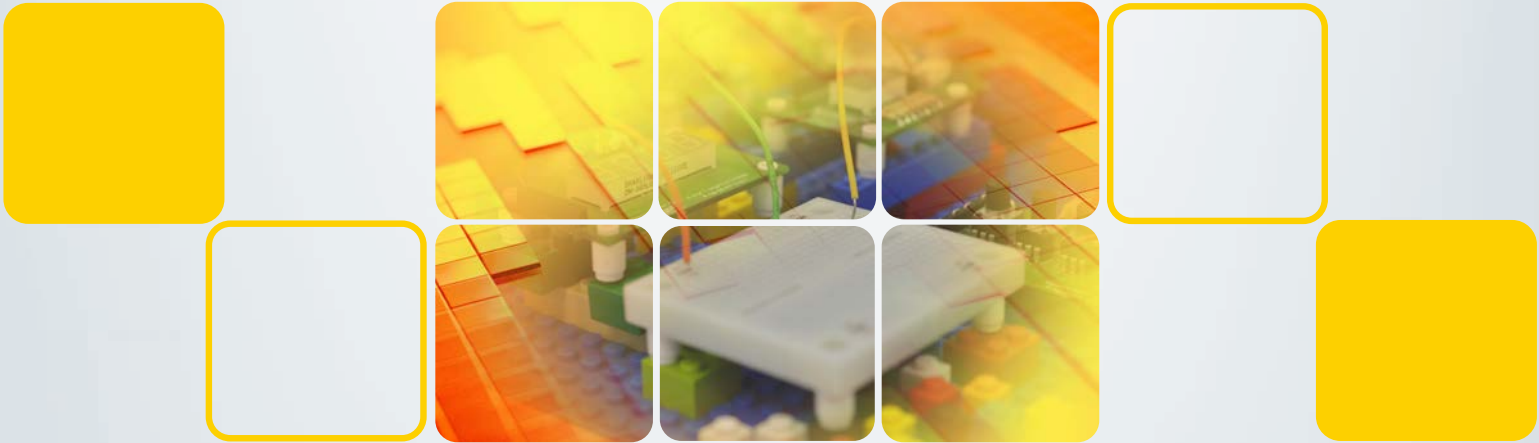


Electronic Training Equipment & Breadboard / Accessories





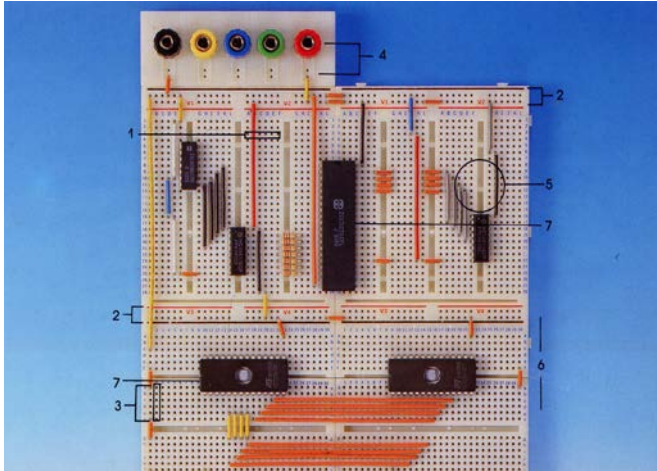
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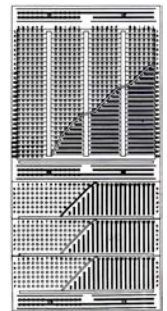
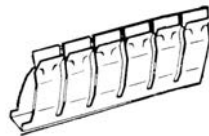
Advanced Solderless Breadboard

The best tool to complete the prototyping & testing for electronic circuits

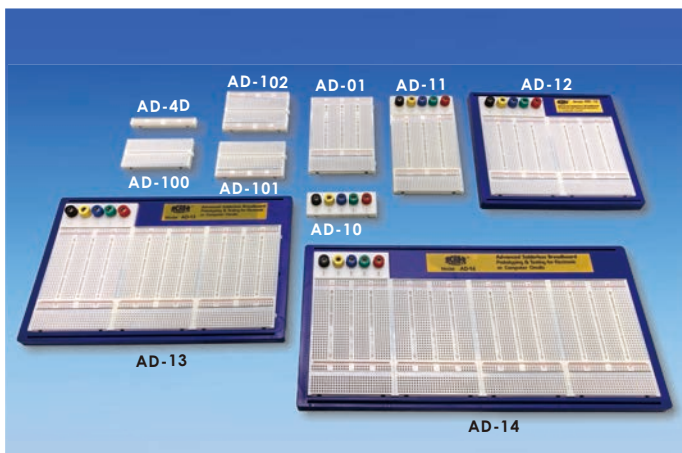


1. 6 interconnected round tie points per row in horizontal array provide an ideal placement and more tie points for MSI, LSI and all DIP size chips in "CPU BUS" connection.
2. POWER BUS
2 of 24 each of continual interconnected tie points with black line printing 4 of 12 each of continual interconnected tie points with red line printing & V1, V2, V3, V4 marking individually
3. 6 interconnected round tie points per column in vertical array provide an ideal placement and wiring for NON-DIP size components.
4. Power block provides 5 individual binding post for easy connection of power bus. (Accept 4.5mm Y-terminal, stripped wire and 4mm banana plug.)
5. Interconnected "Round" tie points make your wiring easier. Accept solid wires from AWG # 22-30 (0.3mm~0.8 mm).
6. Vertical combination will offer more wiring spaces for DIP size components.
7. The IC chips can be mounted between two AD breadboards when combination.

1. More interconnected tie points
2. Better structure
3. More terminals & power bus
4. Easy combination & expansion
5. Easy insertion & wiring
6. Very flexible for digital & analog circuits

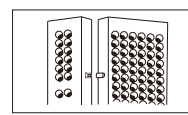


AD Series

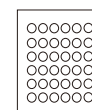


Material

1. External Body is made of ABS.
2. The internal interconnected clips are Nickel-Plated or Silver-Plated.



SNAP LOCK



ROUND HOLE

N:NICKEL PLATED S:SILVER PLATED

Specifications

MODEL	DIMENSION(m/m)			TIE-POINTS	6 interconnected CLIP	12 interconnected CLIP	24 interconnected CLIP	BINDING POST	BACK-PLATE	WEIGHT (gm)
	LENGTH	WIDTH	HEIGHT							
AD-4D	81	12	9	48	0	2	1	0	STICKER	10
AD-100	81	42	9	360	60	0	0	0	STICKER	30
AD-101	81	52	9	408	60	2	1	0	STICKER	40
AD-102	81	62	9	456	60	4	2	0	STICKER	50
AD-10	81	30	19	10	0	0	0	5	STICKER	21
AD-01	83	118	9	948	142	4	2	0	STICKER	78
AD-11	83	147	19	958	142	4	2	5	STICKER	99
AD-12	184	168	24	1906	284	8	4	5	ABS plastic	255
AD-13	266	168	24	2854	426	12	6	5	ABS plastic	368
AD-14	346	168	24	3802	568	16	8	5	ABS plastic	490

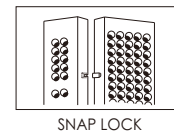


UIB Series Universal Interface Breadboard

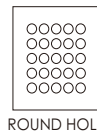


Features

1. With the system expansion availability for the computer (Binding post and various optional connectors are available for end users to fit on connector socket).
2. With EP-3 edge plate, it accepts big size electronic parts or parts without pin such as potentiometer, switch, light etc.
3. 4 binding posts are equipped for external power supply input.
4. Optional Jump wires are especially recommended to be used with UIB breadboards for the circuit layout.



SNAP LOCK



ROUND HOLE

Specifications

N:NICKEL PLATED S:SILVER PLATED

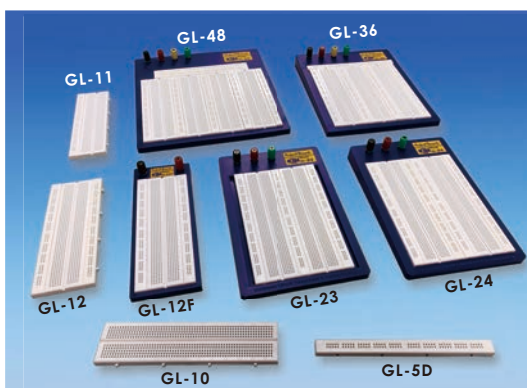
MODEL	DIMENSION(m/m)			TIE-POINTS	5 INCONNECTED CLIP	25 INCONNECTED CLIP	BINDING POST	IC CAPACITY 14 PINS	BACK-PLATE	WEIGHT (gm)
	LENGTH	WIDTH	HEIGHT							
UIB-68	367	250	20	4640	768	32	4	54	PLASTIC STAND	1,300
UIB-46	370	200	20	3160	512	24	4	36	PLASTIC STAND	1,000
UIB-34	230	250	20	2320	384	16	4	27	PLASTIC STAND	800

UC-series Universal Connector Set

REF.NO.	ITEM	DESCRIPTION	*S/O
UC-01	CARD EDGE connector	62 contacts, 2.54 mm pitch	O
UC-02	D Sub connector	25 contacts, male & female	S
UC-03	STRAIGHT HEADER connector	60 contacts	O
UC-04	CARD EDGE connector	56 contacts, 3.96 mm pitch	O
UC-06	CENTRONIC connector	36 contacts	O

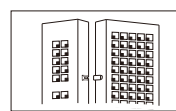
*S is standard , O is option

GL Series

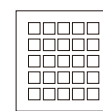


Material

1. External Body is made of ABS.
2. The internal interconnected clips are Nickel-Plated or Silver-Plated.



SNAP LOCK



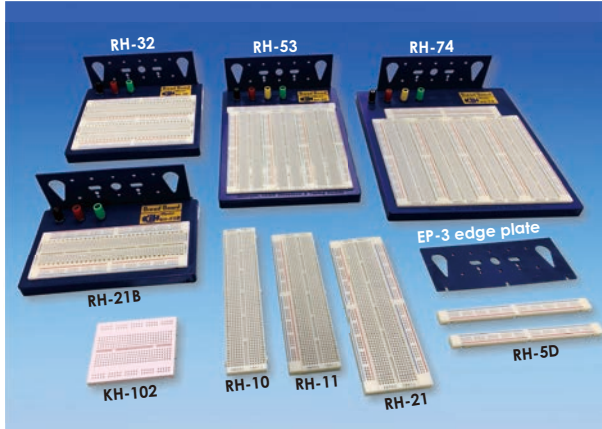
SQUARE HOLE

N:NICKEL PLATED S:SILVER PLATED

MODEL	DIMENSION(m/m)			TIE-POINTS	5 INTERCONNECTED CLIP	25 INTERCONNECTED CLIP	BINDING POST	IC CAPACITY 14 PINS	BACK-PLATE	WEIGHT (gm)
	LENGTH	WIDTH	HEIGHT							
GL-5D	172	13	10	100	—	4	—	—	—	20
GL-10	172	39	10	640	128	—	—	9	—	75
GL-11	172	52	10	740	128	4	—	9	—	95
GL-12	172	65	10	840	128	8	—	9	—	130
GL-12F	203	75	15	840	128	8	2	9	PLASTIC STAND	150
GL-23	224	150	20	1580	256	12	3	18	PLASTIC STAND	285
GL-24	224	150	20	1680	256	16	3	18	PLASTIC STAND	305
GL-36	240	195	21	2420	384	20	4	27	PLASTIC STAND	460
GL-48	264	240	21	3260	512	28	4	36	PLASTIC STAND	605

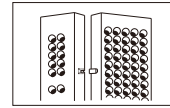


RH Series & KH-102



Material

1. External Body is made of ABS.
2. The internal interconnected clips are Nickel-Plated or Silver-Plated.



SNAP LOCK

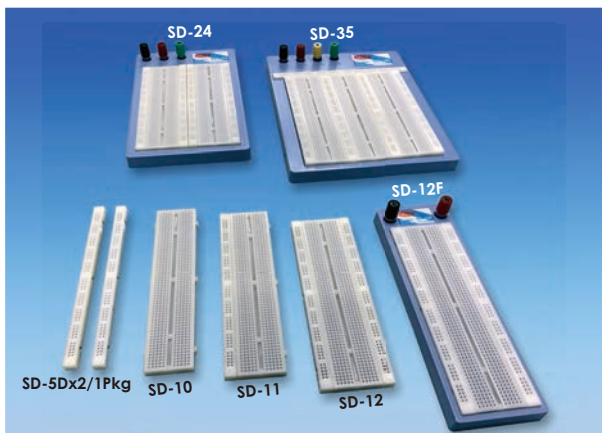


ROUND HOLE

N: NICKEL PLATED S: SILVER PLATED

MODEL	DIMENSION(m/m)			TIE-POINTS	5 INTERCONNECTED CLIP	25 INTERCONNECTED CLIP	BINDING POST	IC CAPACITY 14 PINS	BACK-PLATE	WEIGHT (gm)
	LENGTH	WIDTH	HEIGHT							
KH-102	80	60	10	390	58	4	—	4	—	55
RH-5D	172	13	10	100	—	4	—	—	—	20
RH-10	172	39	10	640	128	—	—	9	—	75
RH-11	172	52	10	740	128	4	—	9	—	95
RH-21	172	65	10	840	128	8	—	9	—	130
RH-21B	191	118	18	840	128	8	3	9	PLASTIC STAND	275
RH-32	190	168	18	1580	256	12	3	18	PLASTIC STAND	385
RH-53	188	250	18	2420	384	20	4	27	PLASTIC STAND	555
RH-74	242	268	18	3260	512	28	4	36	PLASTIC STAND	655

SD Series



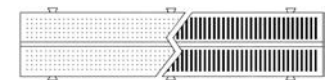
Material

1. External Body is made of ABS.
2. The internal interconnected clips are Nickel-Plated or Silver-Plated.

Construction

TERMINAL STRIPS

Twin columns are separated by 7.62mm center channel. There are 64 groups of 5 interconnected contact sockets on each side.



BUS STRIP

4 rows of 25 interconnected contact sockets are distributed.



N: NICKEL PLATED S: SILVER PLATED

Specifications

ITEM	TERMINAL STRIPS	BUS STRIP	BACKPLATE	DIMENSION(m/m)			TIEPOINTS	14 PIN IC CAPACITY	ACCESSORY		WEIGHT (gm)
				LENGTH	WIDTH	HEIGHT			BINDING POST	JUMP WIRE	
SD-5Dx2	0	2	—	168	9	10	200	—	—	—	39
SD-10	1	0	—	168	39	10	640	9	—	—	66
SD-11	1	1	—	168	46	10	740	9	—	—	80
SD-12	1	2	—	168	55	10	840	9	—	—	95
SD-12F	1	2	PLASTIC STAND	201	64	18.5	840	9	2	—	148
SD-24	2	4	PLASTIC STAND	220	127	18.5	1680	18	3	—	292
SD-35	3	5	PLASTIC STAND	237	175	18.5	2420	27	4	—	458



PSB-01 AC/DC Power Supply for Breadboard



Regulated with short-circuit protection power supply

1. Power switch with lamp
2. Just plug in and start to use
3. Compact and lightweight
4. For both digital/analog circuits

Specifications

1. DC power supply :
 - (1) DC +5V, 1A ; -5V, 500mA. fixed
 - (2) DC 0 to +15V, 500mA variable
 - (3) DC 0 to -15V, 500mA variable
2. AC power supply :
 - AC voltage : 12V, 6V, 0V, 6V, 12V, 300mA fixed
3. Size : (185(L) x 155(W) x 66(H))mm with stand
4. Weight : 3Kg

Accessories

1. AC cable x 1 pce
2. DC output wires: Red x 4 pcs, Black x1 pce

Jump Wire & Jump Wire Set



1. AWG #22 solid wire
2. Pre-cut, Pre-stripped, Pre-formed
3. 0.1"(no insulated)0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1,2,3,4,5 inches in various color
4. Stripped end 1/4 inch & bent 90°
5. 14 kinds of length / each 25pcs
6. Box size: (270(L) x 124(W) x 30(H))mm

KLG-0.5 Series



Special design for oscilloscope probe or test clip use, easier for measuring and test.

Length : 15, 30, 45, 60cm
 KLG-0.5-15, KLG-0.5-30,
 KLG-0.5-45, KLG-0.5-60



TS Series

1. A Great Convenience :
 If used with solderless breadboard, you will find the jump wire is incredibly convenient.
2. Sturdiness :
 Hard pin is not flexible. Using TS jump wire, the hard pin can last permanently after plugging in and pulling out.



3. Five kinds of lengths for using at different distances :

MODEL	SIZE	COLOR	CONTENT
TS-50	50mm	Red, White, Black, Yellow, Blue	2pcs/each color 10pcs/pkg
TS-70	70mm		
TS-100	100mm		
TS-150	150mm		
TS-200	200mm		
TS-100PY	100mm	Black, Red, Yellow, Green	4pcs/pkg

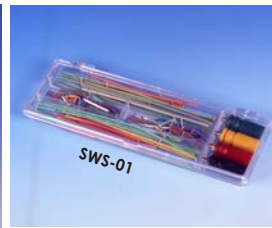


Optional Small Wire Set with Standard Breadboard Package



* The Small Wire Set supplied with the following breadboard can be ordered additionally.

PACKAGE SERIES	SWS-02	SWS-03
UIB	UIB-34K, UIB-46K, UIB-68K	—
GL	GL-23K, GL-24K, GL-36K, GL-48K	GL-12K, GL-12FK
RH	RH-32K, RH-53K, RH-74K	RH-21K, RH-21BK



SWS-01 (14 kinds of length/each 10pcs) with binding post

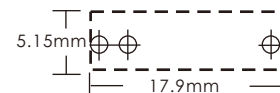
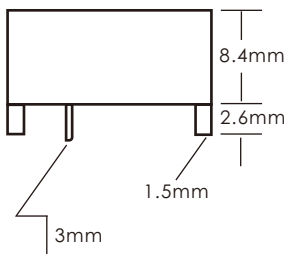


SWS-02 (14 kinds of length/each 10pcs) without binding post
SWS-03 (14 kinds of length/each 5pcs) without binding post

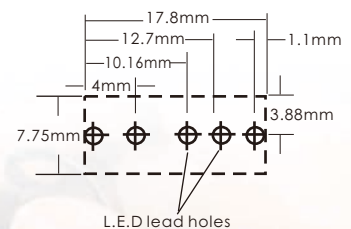
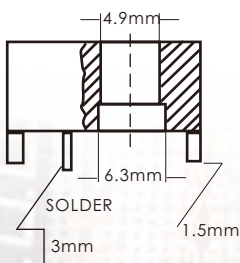


SWS-04 (6 kinds of length/each 12pcs, 2 kinds of Power Wire/each 1pcs)
1. 2.0mm wafer female to female- 10cm
2. 2.0mm wafer female to dupont male- 13cm

Five-point terminal model: FPT-15 20pcs/pkg

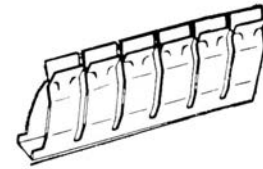


Light terminal model: LT-20 20pcs/pkg





LA-60 Breadboard for Brick, ARDUINO



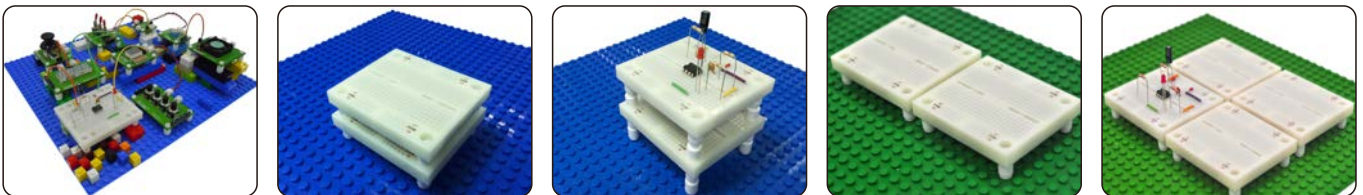
Material

1. External Body is made of ABS.
2. The internal interconnected clips are Nickel-Plated or Silver-Plated.

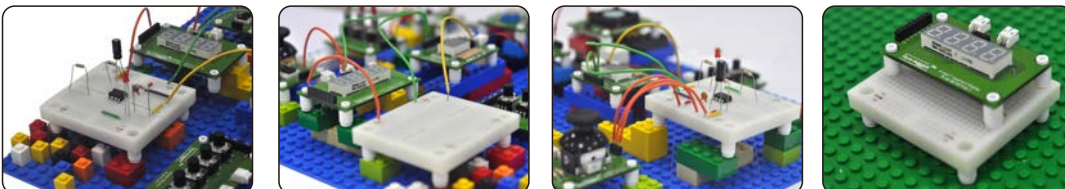
● Features

1. 6 interconnected round tie points per row in horizontal array provide an ideal placement and more tie point for DIP size chip.
2. Power BUS
Each of continual interconnected tie point with black line marking COM, and each of continual interconnected tie points with red line marking V1, V2, V3, V4, V5, V6
3. Interconnected "Round" tie point make your wiring easier, and it accepts solid wires from AWG #22~30 (0.3~0.8mm)
4. Easy combination & expansion
5. Easy insertion & wiring
6. Flexible for simple circuit · Brick · ARDUINO circuits.
7. Dimension : (68(L) x 60(W) x 8(H))mm
8. TIE-POINTS : 360
9. 6 interconnected clip : 60
10. Standard packaging : 1 Breadboard, 8 Brick compatible posts

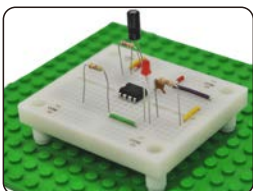
● Various Combination



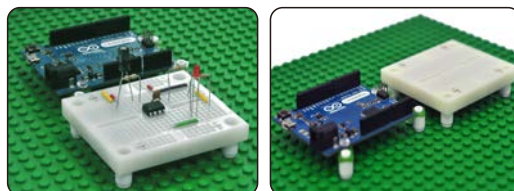
● Applicable to Brick



● Simple circuit



● Applicable to ARDUINO





LP-2800 / LP-3500 Logic Probe



Common Specifications

1. Input impedance 1M Ω
2. Width of min. pulse : 30ns
3. Max. input frequency : 17 MHz
4. Measurable logic gate
 - (1) Logic 1 (red LED lights) and buzzer :
 - TTL : 2.3V \pm 0.2V
 - CMOS : 70%Vcc
 - (2) Logic 0 (green LED lights) and buzzer :
 - TTL : 0.8V \pm 0.2V
 - CMOS : 30%Vcc
5. Input overvoltage protection : \pm 220V DC / AC 15sec
6. Pulse (yellow LED) flashing time : 500ms
7. Power supply protection : \pm 20V

DIMENSION	WEIGHT
212x26.5x18 mm(main body)	65g
235x78x32mm(with case)	210g

Special functions for LP-3500

1. ABS case
 2. Two audio tones
 3. Two external terminals
- They are also available for LP-2800 but at an extra charge.

LP-540H Logic Pulser



The K&H LP-540H logic pulser is a very effective tool for inspecting and repairing logic circuits. It can directly inject a signal into the logic circuits neither removing the IC nor breaking the circuits. Using the logic probe as a monitor, you not only know the wiring errors but also check out mal- functional components.

Logic Pulser can produce a 10 μ s pulse signal at 100 mA load. The signal frequency can be switched to either 0.5Hz or 400Hz as a result the LP-540H is a fairly powerful pulser.

Moreover, the Logic Pulser can produce a 90% high digital signal at the square wave output terminal. It is easier to observe and trace circuits by using an oscilloscope. With a sync. input, it's able to produce an external synchronized signal.

Specifications

1. Sync input impedance : 1M Ω
2. Pulse repetition rate : 0.5pps / 400pps
3. Pulse width in pulser output at 100mA load : 10 μ s
4. Output current
 - (1) pulser mode : 100mA sink / source
 - (2) square wave output : 5mA sink / source
5. Power supply protection : \pm 25V / 25 sec.
6. Output protection : \pm 35V / 15 sec.
7. Size : (212 x 26.5 x 18)mm
8. Weight : 65g

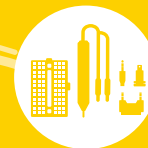
General

Maximum allowable supply voltage : \pm 20V
 Operating supply voltage range : 3V~5V
 Max. Output allowable connecting voltage : \pm 35V
 Free air operating temperature range : 0~50 $^{\circ}$ C
 Max. sync input voltage : \pm 120V / 15sec.

Extra Accessories

The logic pulser also can be used with an external terminal at an extra charge.

Red terminal: to extend probe leads
 Black terminal: to extend ground point to circuit



LP-1001 Logic Probe



1. Testing TTL, DTL, HTL, CMOS and MOS
2. Displaying pulse presence and logic states
3. Catching pulse to 10ns or pulse trains to 50MHz
4. Input overvoltage protection

Specifications

Max. allowable supply voltage	±25V
Guaranteed operation supply Voltage range	+3V ~ +18V
Input voltage	±50V
Operating input voltage range	-25V ~ +25V
Input impedance	120KΩ typical
Minimum detectable pulse width	10ns typical
Logic thresholds	
Logic 1 (green LED lights)	TTL 2.3V ±0.2V CMOS 70%Vcc ±10%
Logic 0 (green LED off)	TTL 0.8V ±0.1V CMOS 30%Vcc ±10%
High Impedance (green LED flash at frequency of 1 Hz)	200KΩ typical (5V)
Input positive voltage (red LED lights)	+5V Max
Input negative voltage (yellow LED lights)	-5V Max
Max input frequency displayable	50MHz Typical
Input overvoltage protection	±50V / 10sec.
Pulse LED (yellow flashing time)	1sec.
Power supply protection	±25V / 15sec.
Dimensions	16Ø x 160mm ±5%
Weight	Approx: 50g

LP-2001 Logic Pulser



1. For TTL, DTL, RTL, HTL, CMOS and MOS
2. Producing 10µs pulse signal
3. Overload protection
4. Output current up to 100mA (pulse)

Specifications

Max. allowable supply voltage	±25V
Operating voltage range	+3V ~ +18V
Max. Output allowable connection voltage	±25V
Max. sync. input voltage	±120V / 15sec.
Sync. input impedance	100KΩ Min
Pulse repetition rate	0.5Hz / 500Hz
Pulse width at pulser output pin	10µs Typical 100mA Load
Output current: pulse mode	100mA sink / source
50 %pulse mode	4mA sink / source
Power supply protection	±25V / 15sec.
Dimensions	16Ø x 160mm ±5%
Weight	Approx : 54g



Computer Servicing Tool Kit

Computer Servicing Tool Kit (1)
SY-805



1. IC inserter (14-16, 24-28 Pin ICs)
2. IC extractor
3. Anti-static wrist strap
4. Solder sucker
5. Solder reel
6. Soldering iron 30W / 110V-120V or 30W / 220V-240V
7. 3 pcs soldering aid tools
8. Heat sink
9. 5" needle nose pliers with cutting edge
10. 4 1/2" side cutter
11. Black zipper case

Computer Servicing Tool Kit (2)
SY-703



1. 3/16" nut driver
2. 1/4" nut driver
3. Three claw parts retriever/extractor
4. Tweezers
5. T10/T15 reversible torque driver
6. Spare parts tube
7. 1/8" flat screwdriver
8. #0 phillips screwdriver
9. IC extractor
10. #1 & 3/16" reversible screwdriver
11. Black zipper case

Computer Servicing Tool Kit (3)
SY-815



1. 1/4" flat screwdriver
2. #2 phillips screwdriver
3. 3/16" flat screwdriver
4. #1 phillips screwdriver
5. 1/8" flat screwdriver
6. #0 phillips screwdriver
7. Reversible T10/T15 torque driver
8. 3/16" nut driver
9. 1/4" nut driver
10. Solder reel
11. Soldering Iron. 30W / 110V-120V or 30W / 220V-240V
12. Solder sucker
13. 3pcs soldering aid tool
14. Heat sink
15. Spare parts tube
16. Tweezers
17. Three claw parts retriever/extractor
18. Reverse action tweezers
19. IC inserter (14-16 pin ICs)
20. IC extractor
21. 5" needle nose pliers with cutting edge
22. 6" adjustable wrench
23. 8" wire cutter
24. Black zipper case

Computer Servicing Tool Kit (4)
SY-9457



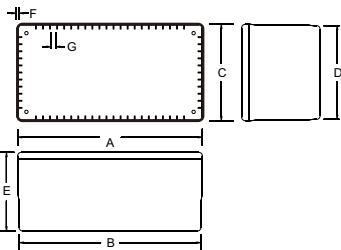
1. CD-ROM laser lens cleaner
2. Anti-static cleaning Pad
3. Anti-static computer cleaning cloth
4. Cleaning wand
5. Anti-static cleaning brush
6. Tweezers
7. 60 CC cleaning solution
8. 18 CC head cleaning fluid
9. Mini vacuum cleaner
10. Micro-thin cloth
11. Black zipper case



Universal Project & Potting Box

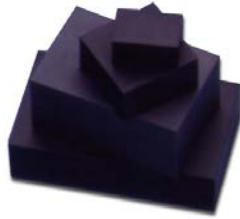


Universal Project Box (PX Series)

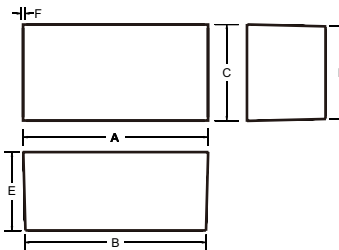


PX-Series

MODEL	DIMENSION(mm)							WEIGHT (g)
	A	B	C	D	E	F	G	
PX-1	104.8	103	54.5	53	44.5	2.4	2	78
PX-2	129.5	128.7	64.4	63.5	44.5	2.4	2	105
PX-3	150	147.8	90	88	54.9	2.6	2	169
PX-4	185	182	115.2	112.2	64.6	2.6	2	259
GRAY	ABS PLASTIC		SCREWS SUPPLIED					



Potting Case (AX Series)

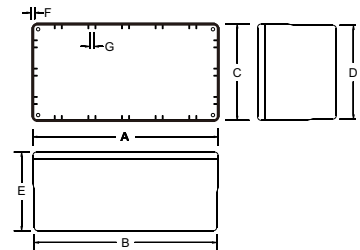


AX-Series

MODEL	DIMENSION(mm)						WEIGHT (g)
	A	B	C	D	E	F	
AX-1	30.1	30	20.1	20	15.3	1.1	2
AX-2	40	39.8	40	39.8	20.2	1.1	5
AX-3	50.5	49.9	50.5	49.9	30.4	1.4	11
AX-4	75.8	74.8	50.8	49.7	35.7	1.4	15.5
AX-5	100.2	100	60.2	59.8	25.6	1.3	18
BLACK	ABS PLASTIC		WITHOUT COVER				



Project Box (BX Series)

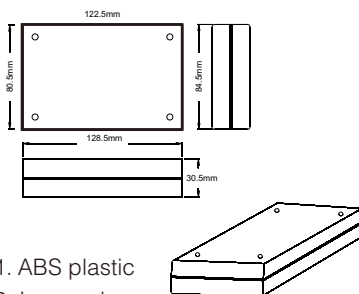


BX-Series

MODEL	DIMENSION(mm)							WEIGHT (g)
	A	B	C	D	E	F	G	
BX-1	76.2	74	50.8	48.5	26.8	1.6	none	26
BX-2	111.6	110	57.7	56.1	22	1.5	none	43
BX-3	100.8	99.3	76.5	75.1	40.8	1.6	2	61
BX-4	150	146.8	100	97	59.2	1.7	2	115
BLACK	ABS PLASTIC		SCREWS SUPPLIED					



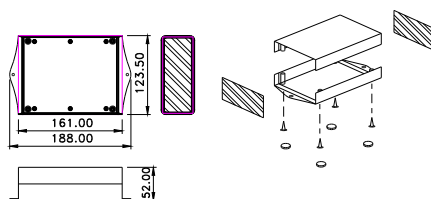
Circuit Box (CB-01)



1. ABS plastic
2. Ivory color
3. Screws supplied



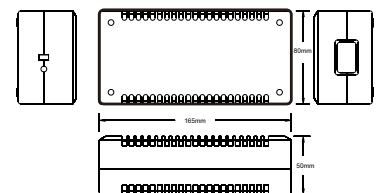
Project Case (DX-01)



1. ABS plastic
2. Ivory color
3. Screws supplied



Project Case (EX-01)



1. ABS plastic
2. Ivory color
3. Screws supplied

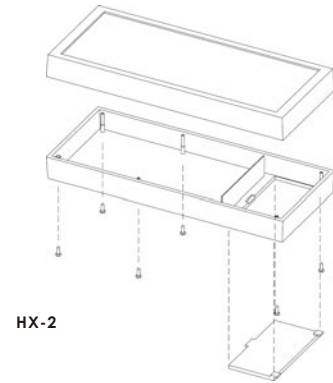


Hand Held Cases

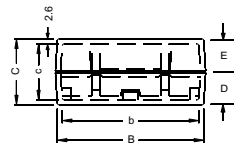
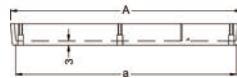


HX-2

The HX series Handheld cases are suited to portable instruments with a battery compartment to accommodate a single PP3 battery, accessed via a removable cover. Moulded in textured finish black ABS. The boxes, with integral pillars, can mount PCBs. All fixing screws are included.



HX-2



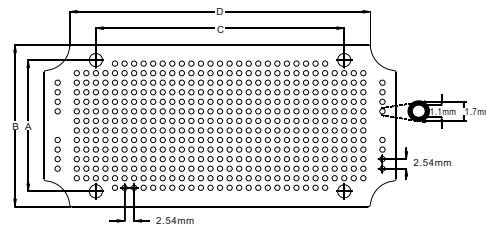
Dimension (units : mm)

MODEL	A	a	B	b	C	c	D	E
HX-2	190	183	77.5	73	34.1	28.1	17.05	17.05

Universal PCB



Universal PC Board



Features

1. FR4 epoxy resin base, 1.6mm thick(double side)
2. HB(phenolic) base, 1.6mm thick (single side)
3. Solder-plated, 1.0 ounce copper
4. Pads-per-hole
5. Power buses
6. Compatible with PX-series(project box)

Optional Accessory

PEP-3: PX-3 Lid



PEP-3

Special Design for Component Hold Use

Dimension(units: mm)

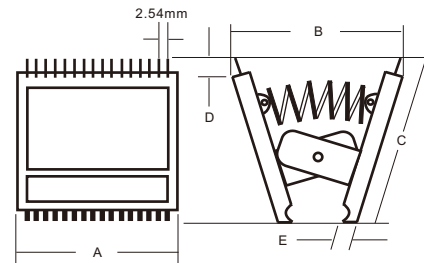
MODEL	A	B	C	D	PADS	SIDE	FIT WITH
PX-1SB	33.6	41.7	65.8	93.4	407	SINGLE	PX-01
PX-2SB	43.2	51.3	89.7	116.5	744	SINGLE	PX-02
PX-3SB	68.3	76.4	111.8	139	1384	SINGLE	PX-03
PX-1DB	33.6	41.7	65.8	93.4	407	DOUBLE	PX-01
PX-2DB	43.2	51.3	89.7	116.5	744	DOUBLE	PX-02
PX-3DB	68.3	76.4	111.8	139	1384	DOUBLE	PX-03
PX-4DB	92.4	100.5	144	170.5	2244	DOUBLE	PX-04



IC Test Clips



1. Easier, faster, hand-free testing
2. Easy attachment on high density PC boards
3. Lead channel makes probe steady without sliding off.
4. With gold-plated pin for best contact
5. Compatible with connector
6. Simplifying prototyping, production test, field service work and quality control inspection



MODEL	(INCH) ROW TO ROW DIMENSIONS	NUMBER OF PIN	SPECIFICATIONS(mm)					WEIGHT (g)
			A	B (MAX)	C	D	E	
ITC-14A	0.3"	14	20.5	25	44.5	6	5.5	25
ITC-16A	0.3"	16	23	23	44.5	8	5	25
ITC-20A	0.3"	20	28	25	44.5	8	5	30
ITC-28A	0.6"	28	37	29	44.5	7	5.5	40
ITC-36A	0.6"	36	48	29	44.5	6	5.5	55
ITC-40A	0.6"	40	52.5	29	44.5	6.5	5.5	55
ITC-48A	0.6"	48	63	29	44.5	6	5.5	70

IC Tools



ICP-20 IC PULLER

1. Ideal for hobbyist
2. Anti-static
3. Suitable for IC from 8~20pin
4. Weight : 25g



ICS-01 IC STRAIGHTENER

1. Ideal for breadboard
2. Anti-static
3. Suitable for IC from 8~20pin and 24~48pin
4. Weight : 25g



PB-16 DIP IC EXTRACTOR

1. It is specially used for solderless breadboard
2. Weight : 10g


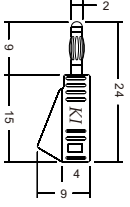

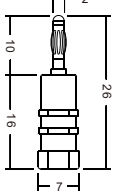

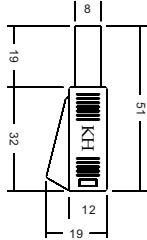

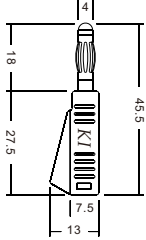

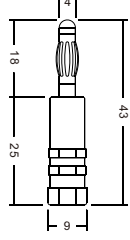

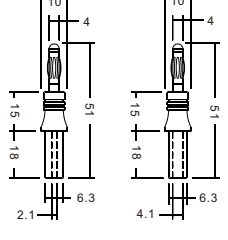

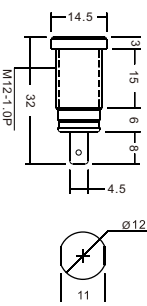

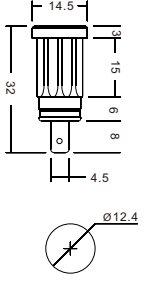


GX-8 PLCC EXTRACTOR

1. Suitable for 18~124pin PLCC used
2. Weight : 22g

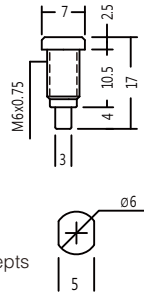


Test Leads & Accessories

<p>KAG-2</p>   <ol style="list-style-type: none"> 1. The 2mm plug is machined from brass with movable multilam contact cage spring 2. Contact surface : Gold-plated 3. Rated current : 50V 10A 4. Color : Black, Red, Yellow, Blue, White, Green 	<p>KBG-2</p>   <ol style="list-style-type: none"> 1. The 2mm plug is machined from brass with movable multilam contact cage spring 2. Contact surface : Gold-plated 3. Rated current : 50V 10A 4. Color : Black, Red, Yellow, Blue, White, Green
<p>KHG-4 / KHN-4</p>   <ol style="list-style-type: none"> 1. The 4mm stackable safety plug is machined from brass with movable multilam contact cage spring 2. Contact surface : Gold/Nickel-plated 3. Rated current : 50V 19A 4. Color : Black, Red, Yellow, Blue, White, Green 	<p>KAG-4 / KAN-4</p>   <ol style="list-style-type: none"> 1. The 4mm stackable plug is machined from brass with movable multilam contact cage spring 2. Contact surface : Gold/Nickel-plated 3. Rated current : 50V 19A 4. Color : Black, Red, Yellow, Blue, White, Green
<p>KBG-4 / KBN-4</p>   <ol style="list-style-type: none"> 1. The 4mm plug is machined from brass with movable multilam contact cage spring 2. Contact surface : Gold/Nickel-plated 3. Rated current : 50V 19A 4. Color : Black, Red, Yellow, Blue, White, Green 	<p>KDN-42 / KDN-44</p>   <ol style="list-style-type: none"> 1. Adaptors for interconnecting between 2mm and 4mm system 2. 4mm plug to 2mm socket 3. 4mm plug to 4mm socket 4. Contact surface : Nickel-plated 5. Rated : 50V 19A 6. Color : Black, Red
<p>KEG-4 / KEN-4</p>   <ol style="list-style-type: none"> 1. A range of shrouded 4mm sockets offered for soldering or 6.4mm fast termination 2. Panel mounting hole : 12 x 11mm 3. Contact surface : Gold/Nickel-plated 4. Rated : 50V 19A 5. Color : Black, Red, Yellow, Blue, White, Green 	<p>KFG-4 / KFN-4</p>   <ol style="list-style-type: none"> 1. A range of shrouded 4mm sockets offered for soldering or 6.4mm fast termination 2. Panel mounting hole : 12.4mm 3. Contact surface : Gold/Nickel-plated 4. Rated : 50V 19A 5. Color : Black, Red, Yellow, Blue, White, Green

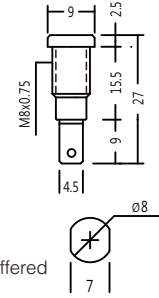


KPG-2A



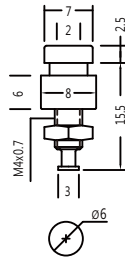
1. A range of 2mm panel mounting socket accepts a wide range of 2mm plugs
2. Panel mounting hole : 6 x 5mm
3. Contact surface : Gold-plated
4. Rated : 50V 10A
5. Color : Black, Red, Yellow, Blue, White, Green

KPG-4A / KPN-4A



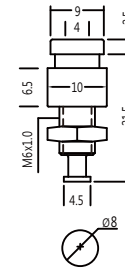
1. A range of panel mounting 4mm sockets offered for soldering or 6.4mm fast termination
2. Panel mounting hole : 8 x 7mm
3. Contact surface : Gold/Nickel-plated
4. Rated : 50V 19A
5. Color : Black, Red, Yellow, Blue, White, Green

KSN-40



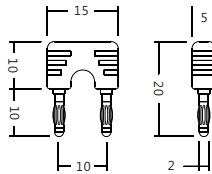
1. A range of 2mm socket designed for easy and quick assembly
2. Panel mounting hole 6 mm
3. Contact surface : Nickel-plated
4. Rated : 50V 10A
5. Color : Black, Red, Yellow, Blue, White, Green

KSN-60



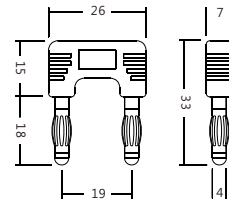
1. A range of 4mm socket designed for easy and quick assembly
2. Panel mounting hole 8mm
3. Contact surface : Nickel-plated
4. Rated : 50V 19A
5. Color : Black, Red, Yellow, Blue, White, Green

KCG-210



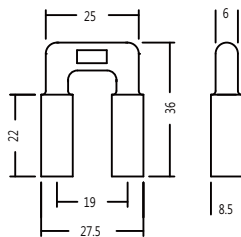
1. The 2mm connecting plug suitable for general interconnection on 2mm socket
2. Contact surface : Gold-plated
3. Rated : 50V 10A
4. Spacing : 10mm
5. Color : Black

KCN-419



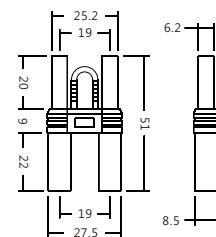
1. The 4mm connecting plug suitable for general interconnection on 4mm socket
2. Contact surface : Nickel-plated
3. Rated : 50V 19A
4. Spacing : 19mm
5. Color : Black

KCN-419A



1. The safety 4mm connecting plug suitable for general interconnection on 4mm safety socket
2. Contact surface : Nickel-plated
3. Rated : 50V 19A
4. Spacing : 19mm
5. Color : Black













KCN-419B














1. The safety 4mm connecting plug with two 4mm in-line safety socket suitable for general interconnection on 4mm safety socket
2. Contact surface : Nickel-plated
3. Rated : 50V 19A
4. Spacing : 19mm
5. Color : Black

Electronic Training Equipment & Breadboard / Accessories



<p>KWG-4 / KWN-4</p>  <ol style="list-style-type: none"> 1. 4mm stackable safety plug with cage springs 2. Contact surface : Gold/ Nickel-plated 3. Rated : 50V 19A 4. Length : 25.50.75.100cm 	<p>KLG-4 / KLN-4</p>  <ol style="list-style-type: none"> 1. 4mm stackable plug with cage springs 2. Contact surface : Gold/Nickel-plated 3. Rated : 50V 19A 4. Length : 25.50.75.100cm 	<p>KMG-4 / KMN-4</p>  <ol style="list-style-type: none"> 1. 4mm plug with cage springs 2. Contact surface : Gold/Nickel-plated 3. Rated : 50V 19A 4. Length : 25.50.75.100cm 	<p>KLG-2</p>  <ol style="list-style-type: none"> 1. 2mm stackable plug with cage springs 2. Contact surface : Gold-plated 3. Rated : 50V 10A 4. Length : 15.30.45.60cm
<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>
<p>KMG-2</p>  <ol style="list-style-type: none"> 1. 2mm plug with cage springs 2. Contact surface : Gold-plated 3. Rated : 50V 10A 4. Length : 15.30.45.60cm 	<p>KLG-0.5</p>  <ol style="list-style-type: none"> 1. 0.5mm plug is machined from phosphor bronze. 2. 2.5Φ Test-Ring in parallel 3. Contact surface : Gold-plated 4. Rated : 50V 10A 5. Length : 15.30.45.60cm 	<p>KLG-0.5-2</p>  <ol style="list-style-type: none"> 1. Adapter lead with 0.5mm plug and 2mm plug 2. Contact surface : Gold-plated 3. Rated : 50V 10A 4. Length : 15.30.45.60cm 	<p>KLG-2-4</p>  <ol style="list-style-type: none"> 1. Adapter lead with 2mm plug and 4mm plug 2. Contact surface : Gold-plated 3. Rated : 50V 10A 4. Length : 25.50.75.100cm
<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>	<p>Color: Black, Red, Yellow, Blue, White, Green</p>
<p>CT-26</p>  <ol style="list-style-type: none"> 1. Ready assembled leads wire approx. 0.6M of 133/0.07mm extra flexible cable 2. Terminated at one end by a 2mm stackable plug and a 35mm long crocodile clip at the other 	<p>CT-41</p>  <ol style="list-style-type: none"> 1. Ready assembled leads wire approx. 1M of 301/0.07mm extra flexible cable 2. Terminated at one end by a 4mm stackable plug and a 35mm long crocodile clip at the other 3. Contact surface : Nickel-plated 	<p>CT-42</p>  <ol style="list-style-type: none"> 1. Ready assembled leads wire approx. 1M of 301/0.07mm extra flexible cable 2. Terminated at one end by a 4mm stackable safety plug and a 35mm long crocodile clip at the other 3. Contact surface : Nickel-plated 	<p>LF-51</p>  <ol style="list-style-type: none"> 1. Fully insulated leads with shrouded BNC plugs complete with moulded-on strain reliefs using RG-58 cable 2. Black PVC : shield. 50Ω impedance 3. Length : Overall length approx. 1M
<p>Color: Black, Red</p>	<p>Color: Black, Red</p>	<p>Color: Black, Red</p>	<p>Color: Black</p>



<p>LF-56</p>  <ol style="list-style-type: none"> 1. Fully insulated BNC test leads whose impedance 50Ω. With RG-58 cable which is moulded to be 35mm long crocodile clips in red and black. 2. Length : Overall length approx. 1M 	<p>LF-61</p>  <ol style="list-style-type: none"> 1. Fully insulated BNC test leads whose impedance 50Ω. With RG-58 cable which is moulded to be stackable 4mm plugs in red and black. 2. Length : Overall length approx. 1M 	<p>LF-101E</p>  <ol style="list-style-type: none"> 1. The oscilloscope probe body is integrated x1 / x10 slide switch with trimming adjustment when in the x10 position. 2. Bandwidth : DC to 60MHz ± 3db 3. Max. Voltage : 600V DC 4. Length : Overall length approx. 1.2M 	<p>LF-210E</p>  <ol style="list-style-type: none"> 1. The oscilloscope probe body is integrated x1 / x10 slide switch with trimming adjustment when in the x10 position. 2. Bandwidth : DC to 100MHz ± 3db 3. Max. voltage : 600V DC 4. Length : Overall length approx. 1.2M
<p>Color: Black</p>	<p>Color: Black</p>	<p>Color: Black</p>	<p>Color: Black</p>
<p>CC-35</p>  <ol style="list-style-type: none"> 1. A set of crocodile clips with insulating vinyl cover Clips are 31mm long. 2. Overall length with sleeve 38mm 	<p>CL-15</p>  <ol style="list-style-type: none"> 1. A set of ten leads wire approx. 370mm long. 2. Terminated at each end with a vinyl insulated crocodile clip 	<p>PC-40</p>  <ol style="list-style-type: none"> 1. A miniature plunger action probes suited for making contact with components on high density PCBs. 2. Overall length 40mm 	<p>PL-15</p>  <ol style="list-style-type: none"> 1. A set of five leads wire approx. 370mm long. 2. Terminated at each end with an insulated miniature probes
<p>Color: Red, Black, Yellow, Green, White</p>	<p>Color: Red, Black, Yellow, Green, White</p>	<p>Color: Red, Black, Yellow, Green, Blue</p>	<p>Color: Red, Black, Yellow, Green, Blue</p>
<p>PT-22</p>  <ol style="list-style-type: none"> 1. A pair of multimeter test leads is well suited to meter with shrouded 4mm connector. 2. The leads are CE approved. IEC-1010 compatible. 3. Terminated at one end with a rigid probe and a fixed sheath or right angle with retractable shrouded 4mm plug at the other. 4. Length : Overall length approx. 1M 5. Rate : 1000V, 10A 	<p>PT-23</p>  <ol style="list-style-type: none"> 1. A set of fully insulated leads with probes and clips. 2. Terminated at one end with a rigid probe including a crocodile clip and a fixed sheath or right angle with retractable shrouded 4mm plug at the other. 3. Length : Overall length approx. 1M 4. Rate : 1000V, 10A (clip excepted). 	<p>PT-24</p>  <ol style="list-style-type: none"> 1. A set of fully insulated leads with probes and clips. 2. Terminated at one end with a rigid probe including a crocodile clip and a fixed sheath or right angle with retractable shrouded 4mm plug at the other. 3. Length : Overall length approx. 1M 4. Rate : 1000V, 10A (clip excepted). 	
<p>Color: Black, Red</p>	<p>Color: Black, Red</p>	<p>Color: Black, Red</p>	

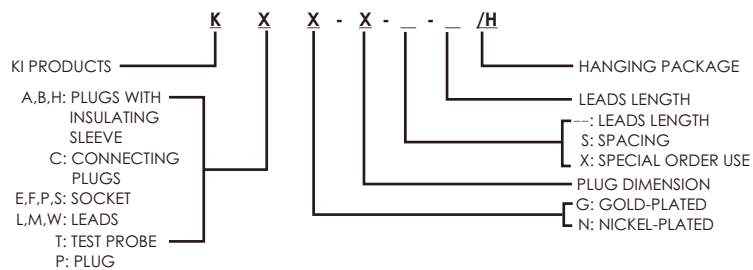
Electronic Training Equipment & Breadboard / Accessories



<p>KBL-2</p> <p>KBL-4</p> <ol style="list-style-type: none"> 1. Bezel to suit 2 / 4mm socket for identification purpose 2. Suited for KSG-2 / KSG-4 3. Panel mounting hole : 4.2 / 6.2mm 4. Color : Black, Red, Yellow, Blue, White 	<p>KSG-2</p> <p>KSG-4</p> <ol style="list-style-type: none"> 1. 2/4 mm PCB mounting socket 2. Mounting hole 2.8/4.8mm 3. Contact surface : Gold-plated 4. Rated : 50V 10/19A
<p>KSG-30</p> <p>KSG-30A</p> <ol style="list-style-type: none"> 1. Uninsulated 2mm chassis mounting socket 2. Mounting hole 3.1mm 3. Contact surface : Gold-plated 4. Rated : 50V 10A <ol style="list-style-type: none"> 1. A range of 2mm socket designed for easy and quick assembly 2. Mounting hole 4.2mm 3. Contact surface : Gold-plated 4. Rated : 50V 10A 	<p>KSN-34</p> <p>KSN-56</p> <ol style="list-style-type: none"> 1. Uninsulated 2/4mm chassis mounting socket 2. Mounting hole 4 / 6mm 3. Contact surface : Nickel-plated 4. Rated : 50V 10/19A
	<p>KRN-41</p> <p>KRN-42</p> <ol style="list-style-type: none"> 1. A 4 mm Multilam plug with center hex-shape and threaded post or solder hole 2. Contact surface : Nickel-plated 3. Rated : 50V 19A

*Remarks : All of our plugs, adaptors and test leads could be sold per pack with hanging card. Please refer to our price list for detail description. Thanks!

ORDERING INFORMATION





PP-272 Power Project Board / PBU-312 Circuit Lab



PBU-312 Circuit Lab

The PBU-312 Circuit Lab, with prototyping breadboard, power supplies and an universal connector (UC series) as connections environment, is a low cost but ideal tool for learning.

Specifications

Power supply : DC +5V/1A, Variable 0 ~ ±15V, 500mA. with short circuit protection.
Breadboard : AD-202 breadboard, 1992 tie points

PP-272 Power Project Board Specifications

- DC power +5 V / 1A
Variable power 0 ~ ±15 V/500mA with short circuit protection
- Solderless breadboard RH-53 interconnected 2420 tie points
- Edge plate :
EP-3 edge plate for the best placement of non-dip size components
- Power switch with light
- AC 110 V/220V, 120V/240V, 50/60Hz
- Dimension :
Main body (250 x 200 x 80)mm, With box (305 x 235 x 85)mm
- Weight : 2.5Kg

Optional Accessories

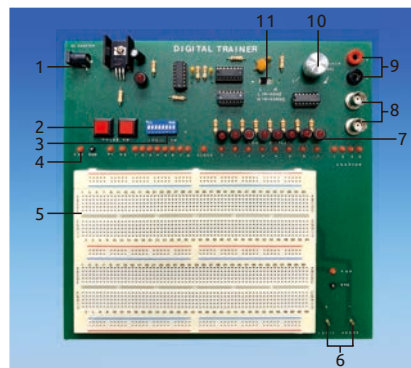
UC series, the universal connector socket family

MODEL	ITEM	DESCRIPTION
UC-01	Card edge connector	62 contacts, 2.54mm pitch
UC-02	D-sub connector	25 contacts, male & female
UC-03	Straight header connector	60 contacts
UC-04	Card edge connector	56 contacts, 3.96mm pitch
UC-06	Centronic connector	36 contacts

DT-01 Digital Trainer



With components sourced by users, the following experiments can be constructed by DT-01 hardware and user's guide: LED display, Getting a pulse, Setting a logic level, Getting a clock and using the logic probe, AND/OR/NOT/NAND/NOR/XOR Gate, Three state buffer, RS latch, JK Flip Flop, Monostable multivibrator, and Asynchronous up/down counter.



Specifications

- AC adaptor jack : I/P DC + 8V, 1.5A
- Pulse switch : Two bounce-free push-buttons
- Logic switch : Eight logic level switches in DIP type
- DC O/P : DC +5 V, 750mA for user
- B-023 breadboard : Solderless breadboard with 1580 interconnected tie points
- Clip terminal : Logic probe clip terminal
- LED display : Eight LED buffered logic level indicators
- BNC jacks
- Banana jacks
- Clock adjustment : Fine adjustment of clock frequency
- Select switch : Clock range selection
L : 10Hz~40Hz. H : 1K~20KHz.

Accessories

- ADP-01 AC Adaptor
- LP-2800 Logic Probe
- User's Guide



IDL-400 Logic Trainer

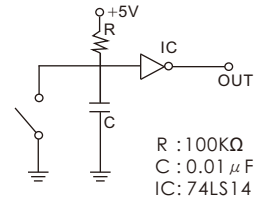


CE

The IDL-400 logic trainer is designed for the logic beginners to enhance the comprehension of basic logical theory. The user-friendly design makes beginners understand logic gates more easily. It is equipped with various kinds of basic logic gates, Debounce logic switches, LED indicators, DC power supply with short circuit protection, pulse generator and a solderless breadboard.

Specifications

- Basic logic gate units :
 - It contains 6 kinds of logic gates, i.e. AND gate X 6, OR gate X 6, NAND gate X 6, NOR gate X 6, XOR gate X 3 and NOT gate X 3.
 - Input voltage of HI level > 2.25V
 - Input voltage of LO level < 0.8V
- DC power supply: With short circuit protection and indicator
 - Output voltage +5V \pm 5%
Max. output current 1Amp.
Line regulation < 50mV
Load regulation < 100mV
 - Output voltage -5V \pm 5%
Max. output current 500mA
Line regulation < 25mV
Load regulation < 30mV
 - Output voltage \pm 15V \pm 5%
Max. output current 500mA
Line regulation < 150mV
Load regulation < 150mV
- Pulse generator :
 - 3 kinds of time interval : 1sec., 0.1sec., 0.01sec.,
 - Output voltage +5V
- Debounce logic switch : HI/LO
- 8 bits LED output indicator : Max. input voltage \leq 15V DC
- Solderless breadboard : AD-200
Interconnected 1896 tie points, fits all components with DIP sizes and solid wire AWG #22-30 (0.3mm~0.8mm)
- Accessories :
 - Power cord
 - User manual
- Dimensions : (420(L) x 360(W) x 200(H))mm
- Weight : 4.2kg



IDL-600A Analog Lab



CE

Specifications

- Solderless breadboard : AD-200
Interconnected nickel plated contact socket with 1896 tie points, fits all components with DIP sizes and solid leads AWG #22-30 (0.3 ~ 0.8mm).
- DC power supply :
 - Variable DC power : Output voltage 0 ~ +15V \pm 10% and 0 ~ -15V \pm 10%
Max. output current 300mA.
 - +5V DC power supply : Output voltage +5V \pm 10% (no load to full load).
Max. output current 1Amp.
 - 5V DC Power Supply : Output voltage -5V \pm 10%
Max. output current 100mA.
 - All DC power supplies are equipped with short-circuit protection
- Function generator :
 - Frequency ranges : 0.1 Hz ~ 2 Hz
(6 ranges)
 - 1 Hz ~ 20 Hz
 - 10 Hz ~ 200 Hz
 - 100 Hz ~ 2 KHz
 - 1 KHz ~ 20 KHz
 - 10 KHz ~ 200 KHz
 - Amplitude output
 - Sine wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) ~ 13Vpp(Max.) \pm 10% variable.
 - Triangle wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) ~ 9Vpp(Max.) \pm 10% variable.
 - Square wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) \pm 10% variable.
 - TTL mode : +5V \pm 10%
- Voltmeter : 0 ~ 30VDC full scale, class 2.5, impedance = 320K Ω
- Ampere meter : 0 ~ 100 μ A full scale, class 2.5, impedance = 1K Ω
- Universal counter
 - Frequency range : 1Hz ~ 99.999999MHz ; 10Hz ~ 100.000000MHz
 - Period range TH & TL : 0.01 μ s ~ 999999.99 μ s ; 1 μ s ~ 99999999 μ s
 - Input signal : TTL or CMOS level or any level (Vmin \geq +2.3Vp \pm 10%)
 - Display : 8-digit 7-segment LED display
 - Counter switch : External / internal
- Pin tip/banana jack : 2pcs
- Pin tip/BNC jack : 2pcs
- 2 positions slide switch : 2pcs
- 3 positions slide switch : 1pce
- Potentiometer :
 - VR1 = 1K Ω
 - VR2 = 100K Ω
- 6 positions rotary switch : 1pce
- Speaker : 2 $\frac{1}{4}$ " , 8 Ω
- Accessories :
 - Power cord
 - User manual
- Dimensions : (420(L) x 360(W) x 200(H))mm
- Weight : 4.2kg



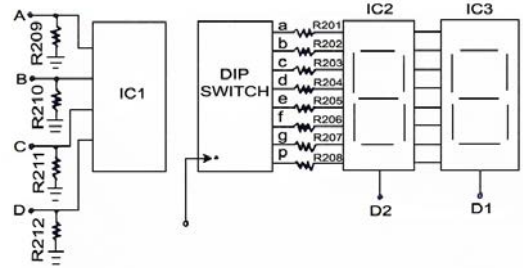
IDL-800A Digital Lab



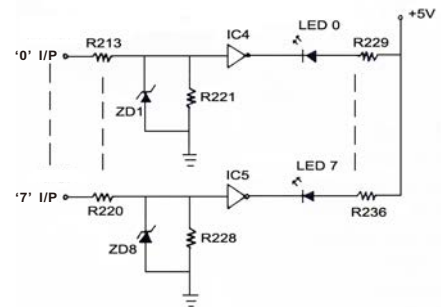
Specifications

- Solderless breadboard : AD-200
Interconnected nickel plated contact socket with a total of 1896 tie points fits all components with DIP size and solid wire in diameter of AWG #22-30 (0.3mm ~ 0.8mm)
- DC power supply
 - Variable DC power :
 - Positive output voltage : 0 ~ +15V ±10%
 - Negative output voltage : 0 ~ -15V ±10%
 - Max. output current : 300mA.
 - Fixed power supply :
 - Positive output voltage : +5V ±10%
 - Max. output current : 1Amp.
 - Negative output voltage : -5V ±10%
 - Max. output current : 100mA
 - All DC power supplies with short circuit protection.
- Function generator :
 - Frequency ranges : 0.1 Hz ~ 2 Hz
(6 ranges)
 - 1 Hz ~ 20 Hz
 - 10 Hz ~ 200 Hz
 - 100 Hz ~ 2 KHz
 - 1 KHz ~ 20 KHz
 - 10 KHz ~ 200 KHz
 - Amplitude output
 - Sine wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) ~ 12Vpp(Max.) ±10% variable.
 - Triangle wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) ~ 9Vpp(Max.) ±10% variable.
 - Square wave : 0.1Hz ~ 200KHz, 20Vpp(Max.) ±10% variable.
 - TTL mode : +5V ±10%
- Digital voltmeter :
 - 3½ digits LED display.
 - 4 ranges: 0 ~ 199.9V full scale
 - 0 ~ 19.99V full scale
 - 0 ~ 1.999V full scale
 - 0 ~ 199.9mV full scale
 - Input impedance : 10MΩ for any range.
- Universal counter
 - Frequency range : 1Hz ~ 99.999999MHz ;
10Hz ~ 100.00000MHz
 - Period range TH & TL : 0.01μs ~ 999999.99μs ;
1μs ~ 99999999μs
 - Input signal: TTL or CMOS level or any level (Vmin ≥ +2.3Vp ±10%)
 - Display : 8-digit 7-segment LED display
 - Counter switch : External / internal

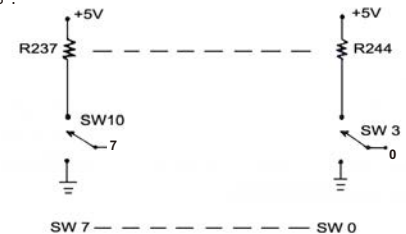
- Two digits of 7 segment LED display :
Common cathode operation



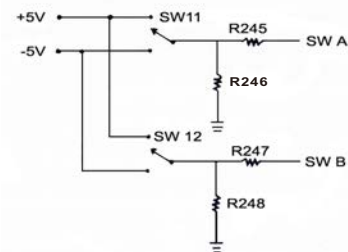
- Four point tip / banana socket / BNC socket exchange adapters
- Eight buffered LED displays :



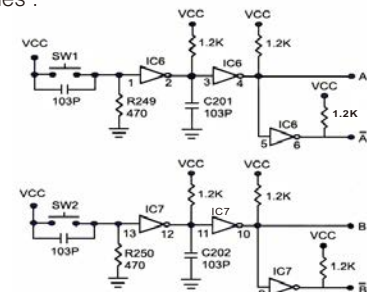
- Eight data switches :



- Two function switches :



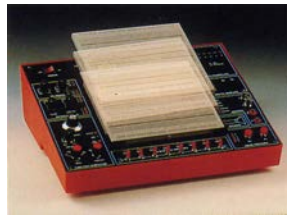
- Two pulse switches :



- Dimensions : 420 x 360 x 200mm (L x W x H)
- Weight : 4.2kg



ETS-5000 Advanced Digital Training System



Feature
Specially Removable

AD-222 solderless breadboard can be easily put into and taken off. It is convenient for keeping the individual experiment.

Reserve Fixed Holders
It is ideally suitable for universal connectors.

Specifications

- Solderless breadboard : AD-222
Interconnected nickel plated 2712 tie points, fits all components with DIP sizes and solid wire AWG #22-30 (0.3~0.8mm). It can be changed and replaced for different purposes and can be connected with demonstration panel. Therefore, it is very convenient for both teachers and students.
- DC power supply :
 - Fixed DC output : +5V, 1 A
 - Fixed DC output : -5V, 300mA
 - Variable DC output : +3V ~ +15V, 500mA
 - Variable DC output : -3V ~ -15V, 500mA
- Mode selector switch :
When the switch is put on "TTL" or "CMOS" position, the input or output of pulse generator, pulser switches, 8 bits data switches, digital probe, 8 bit LED display will meet the HI or LO level of "TTL" or "CMOS"
- Two digits of 7-segment LED display
- Pulse generator :
 - Duty cycle : 50%
 - Frequency range :
 - 1 Hz ~ 10 Hz
 - 10 Hz ~ 100 Hz
 - 100 Hz ~ 1 KHz
 - 1 KHz ~ 10 KHz
 - 10 KHz ~ 100 KHz
 - 100 KHz ~ 1 MHz
 - Amplitude : 0 ~ 10Vpp
 - TTL/CMOS mode output
TTL : +5V
CMOS : +VDC (depends on the + VDC output)

- Eight bits LED display :
Set mode selector switch to "TTL" position

Logic Level	Input Level	Display light up
LO	<0.8±0.2V	Green
HI	>2.3±0.2V	Red
Open	0.8~2.3V	No display

Set mode selector switch to "CMOS" position

Logic Level	Input Level	Display light up
LO	<30%+VDC ±10%	Green
HI	>70%+VDC ±10%	Red
Open	30%~70%+VDC	No display

- Two pulser switches :
 - A, \bar{A} , B, \bar{B} output
 - Output level :
TTL : HI = 5V, LO = 0.1V
CMOS : HI = + VDC, LO = 0.1V

- Eight data switches :
TTL : HI = 5V, LO = 0V
CMOS : HI = +VDC, LO = 0V

- Digital probe :
Set mode selector switch to "TTL" position

Logic Level	Input Level	Display
LO	<0.8±0.2V	L
HI	>2.3±0.2V	H
Open	0.8~2.3V	O
Transit	LO-->HI	P

Set mode selector switch to "CMOS" position

Logic Level	Input Level	Display
LO	<30%+VDC ±10%	L
HI	>70%+VDC ±10%	H
Open	30%~70%+VDC	O
Transit	LO-->HI	P

Memory : The two points besides 7 segment LED display will keep lighting while in "level transition"(LO --> HI or HI--> LO)

- Universal connector :
It reserves fixed holders on the panel in order to be connected with various connectors, for example :

Standard accessory :

UC-02 RS-232 D sub connector (25pin female & male)

Optional accessories :

- UC-01 : Card edge connector 2.54mm 62pin
- UC-03 : Straight header connector 60pin
- UC-04 : Card edge connector 3.96mm 56pin

- Other standard accessories :

- Power cord
- Test probe
- Pin : 6pcs
- User manual

- Dimension :
(325(L) x 250(W) x 95(H))mm

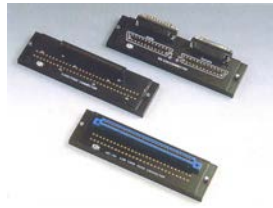
- Weight : 4.3kg



ETS-7000A Digital-Analog Training System



Reserve Fixed Holders
It's available for universal connectors.



Expansion Features
It can perform computer interface experiments by matching universal connector.

Specifications

1. Solderless breadboard : AD-222
Interconnected with 2712 tie points nickel plated contact, fits all components with DIP sizes and solid wire AWG #22-30 (0.3mm ~ 0.8mm). It can be changed and replaced for different purposes and can be connected with demonstration panel. Therefore, it is very convenient for both teachers and students.
2. DC power supply :
 - (1) Fixed DC output : +5V \pm 10%, 1A.
 - (2) Fixed DC output : -5V \pm 10%, 300mA.
 - (3) Variable DC output : 0V ~ +15V \pm 10%, 500mA.
 - (4) Variable DC output : 0V ~ -15V \pm 10%, 500mA.
3. Potentiometers :
 - (1) Variable resistor VR1 = 1 K Ω (B)
 - (2) Variable resistor VR2 = 100K Ω (B)
4. Function generator
 - (1) Frequency ranges : 0.1 Hz ~ 2 Hz
(6 ranges)
 - 1 Hz ~ 20 Hz
 - 10 Hz ~ 200 Hz
 - 100 Hz ~ 2 KHz
 - 1 KHz ~ 20 KHz
 - 10 KHz ~ 200 KHz
 - (2) Amplitude output
 - Sine wave : 0.1Hz~200KHz, 20Vpp(Max.)~10Vpp(Max.) \pm 10% variable.
 - Triangle wave : 0.1Hz~200KHz, 20Vpp(Max.)~6Vpp(Max.) \pm 10% variable.
 - Square wave : 0.1Hz~200KHz, 20Vpp(Max.) \pm 10% variable.
 - TTL mode : +5V \pm 10%
5. Universal counter
 - (1) Frequency range : 1Hz~99.999999MHz ; 10Hz~100.000000MHz
 - (2) Period range TH & TL : 0.01 μ s ~ 999999.99 μ s ;
1 μ s ~ 99999999 μ s
 - (3) Input signal : TTL or CMOS level or any level ($V_{min} \geq +2.3V \pm 10\%$)
 - (4) Display : 8-digit 7-segment LED display
 - (5) Counter switch : External / internal
6. Eight bits data switches :
When toggle switch is set at "down" position, the output is LO level; on the contrary, it will be HI level while setting at "up" position.
7. Speaker :
2 1/4 inch diameter, 8 Ω / 0.5W to be used for load
8. Four channel adaptor :
Both the two banana sockets' and two BNC jacks' point tips are changeable. They are suitable to connect ETS-7000A with peripherals.
9. Two digits of segment LED display :
 - (1) BCD based output display
 - (2) Numerical designs and resultant displays



Segment Identification

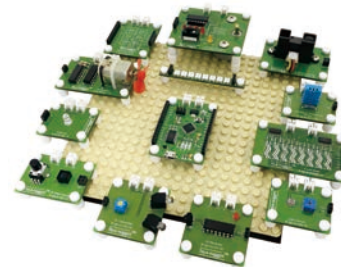


10. Two pulse switch (with 2 sets of output: A, \bar{A} , B, \bar{B}) :
2 pcs of push-buttons contain switches Debounce for eliminating the bounce caused by switch from "open" to "close" or from "close" to "open" position.
11. 8 bits LED display:
Eight red LEDs separate input terminals, light up at "HI level" input, and turn off at "LO level" input.
12. Universal connector fixed holder:
Reserving universal connector fixed holder on the panel to connect with various universal connectors :
Standard accessory :
UC-06 Centronic connector
Optional accessories :
 - (1) UC-01 : Card edge connector 2.54mm 62pin
 - (2) UC-02 : RS-232 connector 25pin D sub connector, male & female
 - (3) UC-03 : Straight header connector 60pin
 - (4) UC-04 : Card edge connector 3.96 mm 56pin
13. Other standard accessories:
(1) Power cord (2) Pin : 6pcs (3) User manual
14. Dimensions : (325(L) x 250(W) x 95(H))mm
15. Weight : 4.3kg

Optional :

NGT-602 faya-nugget Combo Pack

Exploring Arduino projects with ETS-7000A



1. Main controller : brickNano
2. Modules :

(1) Step Motor	(7) IR Transmitter
(2) IR Distance Sensor	(8) IR Pulse Sensor
(3) Humidity & Temperature Sensor	(9) RGB LED
(4) Touch Slider	(10) DC Motor
(5) Light Sensor	(11) Basic Logic Gates
(6) IR Receiver	(12) Color Sticker

Accessories

Brick Pack / 21*21 Brick Plate / Brick Post Pack / Brick Cap Pack / Micro USB Cable / Power Wire Pack / Signal Wire Pack / Tutorial CD



OLS-1000 Analog Overlay Learning System



Standard System Package

To assemble and examine experiment is laborious. OLS Series will help the students to visualize the function of experiment circuit. Electronic theory will be taught straightly out of book accordingly.

The main objective of this trainer is to teach the student of electronic circuits rather than focusing on the assembly of the components.

Features

1. The OLS -1000 Analog Overlay Learning System allows students to assemble even the most complicated circuit and leave enough time for fruitful experimentation .
2. The OLS-1000 offering electronic templates to guide students to an immediate and rational experiment layout since symbols of tracing paper are same as those of traditional circuit diagram.
3. The OLS-1000 Analog Overlay Learning System is compatible with K&H products of IDL-600A Analog Lab and ETS-7000A Digital-Analog Training System.
4. No add-ons are required. A standardized set of all necessary components is included. The thorough courseware was designed by educators with over 20 years practical teaching experience. The experiments especially stress on the theory. The professional manual is considered as the most widely used theory books. The schematic diagrams component list and procedures are clearly offered. Each experiment was tested prior to final editing.
5. Moreover, the continuous hands-on exposure ensures the transfer of practical technical skills in the minimum time.



Compatible With ETS-7000A Digital-analog Training System

Experiment Contents

1. Semiconductor silicon diodes in DC circuits
2. Light emitting diode in DC circuits
3. Silicon diodes in AC circuits : half wave rectification
4. Silicon diodes in AC circuits : full wave rectification
5. The use of a diode bridge in DC circuits
6. The use of a diode bridge in AC circuits
7. Filtering and regulation of a pulsating DC voltage
8. An experimental power supply using a "PI" filter
9. Voltage multiplying using diodes & capacitors : voltage doubling
10. DC current gain of a common emitter transistor configuration
11. The common emitter as an AC amplifying stage
12. Cascaded stages of amplification
13. Class a single-ended loudspeaker driven audio amplifier
14. The class a push-pull audio amplifier
15. Complementary-symmetrical push-pull output circuits
16. The field effect transistor: the common-source amplifier
17. Oscillator circuits : The zero-phase shift oscillator
18. Oscillator circuits : The phase-shift oscillator
19. Oscillator circuits : The armstrong oscillator
20. Oscillator circuits : The hartley oscillator
21. Oscillator circuits : The colpitts oscillator
22. Digital integrated circuits : The AND gate
23. Digital integrated circuits : The OR gate
24. Digital integrated circuits : The AND-OR function
25. Digital integrated circuits : The inverting gate
26. Digital integrated circuits : The NAND gate
27. Digital integrated circuits : The NOR gate
28. Digital integrated circuits : The full adder

Standard Package

1. Circuit diagram (tracing paper) : 28pcs
2. Experiment book : 1pce
3. Components : 1set
4. RM-203 breadboard : 1pce
5. Dimensions : (290(L) x 225(W) x 55(H))mm
6. Weight : 1.3kg



OLS-2000 Digital Overlay Learning System



Standard System Package



Compatible With IDL-800A Digital Lab

Features

1. The OLS -2000 Digital Overlay Learning System allows students to assemble even the most complicated circuit and leave enough time for fruitful experimentation .
2. The OLS-2000 is compatible with K&H products of IDL-800A Digital Lab, DT-01 Digital Trainer, ETS-5000 Advanced Digital System and ETS-7000A Digital-Analog Training System.
3. No add-ons are required. A standardized set of all necessary components is included. The thorough courseware was designed by educators with over 20 years practical teaching experience. The experiments especially stress on the theory. The professional manual is considered as the most widely used theory books. The schematic diagrams component list and procedures are clearly offered. Each experiment was tested prior to final editing.
4. Moreover, the continuous hands-on exposure ensures the transfer of practical technical skills in the minimum time.

Experiment Contents

1. FE-01 basic logic functions
2. FE-02 basic logic functions
3. FE-03 basic logic functions
4. FE-04 basic logic functions
5. FE-05 boolean algebra and simplification of logic equations
6. FE-06 boolean algebra and simplification of logic equations
7. FE-07 boolean algebra and simplification of logic equations
8. FE-08 boolean algebra and simplification of logic equations
9. FE-09 boolean algebra and simplification of logic equations
10. FE-10 boolean algebra and simplification of logic equations
11. FE-11 demorgan's theorem
12. FE-12 demorgan's theorem
13. FE-13 demorgan's theorem
14. FE-14 demorgan's theorem
15. FE-15 demorgan's theorem
16. FE-16 TTL NAND/NOR gates definitions and operation
17. FE-17 NAND/NOR gates definitions and operation
18. FE-18 the "exclusive-OR" and its applications
19. FE-19 the "exclusive-OR" and its applications
20. FE-20 the "exclusive-OR" and its applications
21. FE-21 the "exclusive-OR" and its applications
22. FE-22 the "exclusive-OR" and its applications
23. FE-23 the "exclusive-OR" and its applications
24. FE-24 the "exclusive-OR" and its applications
25. FE-25 full-adder and full-subtractor
26. FE-26 full-adder and full-subtractor
27. FE-27 full-adder and full-subtractor
28. FE-28 full-adder and full-subtractor

To assemble and examine experiment is laborious.

OLS Series will help the students to visualize the function of experiment circuit. Electronic theory will be taught straightly out of book accordingly.

The main objective of this trainer is to teach the student of electronic circuits rather than focusing on the assembly of the components.

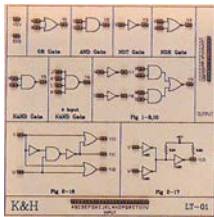
29. FE-29 full-adder and full-subtractor
30. FE-30 bistable or flip-flop(FF)
31. FE-31 bistable or flip-flop(FF)
32. FE-32 bistable or flip-flop(FF)
33. FE-33 binary counters and the binary number system
34. FE-34 binary counters and the binary number system
35. FE-35 divide-by-n counters and decade counters
36. FE-36 divide-by-n counters and decade counters
37. FE-37 divide-by-n counters and decade counters
38. FE-38 divide-by-n counters and decade counters
39. FE-39 divide-by-n counters and decade counters
40. FE-40 shift registers and ring counters
41. FE-41 shift registers and ring counters
42. FE-42 shift registers and ring counters
43. FE-43 shift registers and ring counters
44. FE-44 pulse forming and shaping; the schmitt trigger
45. FE-45 pulse forming and shaping; the schmitt trigger
46. FE-46 integrated-circuit timers-the 74122, 74121, and 555
47. FE-47 integrated-circuit timers-the 74122, 74121, and 555
48. FE-48 decoding and encoding
49. FE-49 decoding and encoding
50. FE-50 decoding and encoding
51. FE-51 decoding and encoding
52. FE-52 random-access memories (RAM) scratch pad memories
53. FE-53 random-access memories (RAM) scratch pad memories
54. FE-54 the operational amplifier
55. FE-55 the operational amplifier
56. FE-56 the operational amplifier
57. FE-57 digital-to-analog (D/A) and analog-to-digital (A/D) conversion
58. FE-58 digital-to-analog (D/A) and analog-to-digital (A/D) conversion
59. FE-59 complementary symmetry MOS (CMOS)-principles and characteristics
60. FE-60 complementary symmetry MOS (CMOS)-principles and characteristics
61. FE-61 complementary symmetry MOS (CMOS)-TTL interface
62. FE-62 complementary symmetry MOS (CMOS)-TTL interface

Standard Package

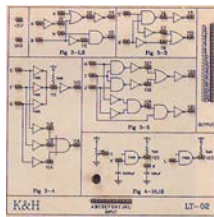
1. Circuit diagram (tracing paper) : 62pcs
2. Experiment book : 1pce
3. Components : 1set
4. RM-203 breadboard : 1pce
5. Dimensions : (290(L) x 225(W) x 55(H))mm
6. Weight : 1.4kg



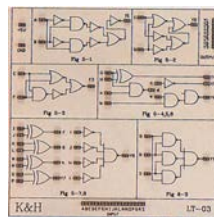
LT-1000 Digital Learner's Teacher



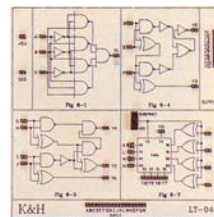
LT-01 EXPERIMENT 1,2



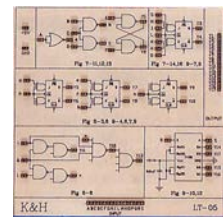
LT-02 EXPERIMENT 3,4



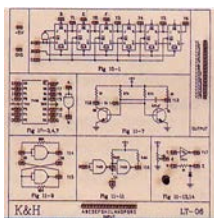
LT-03 EXPERIMENT 5



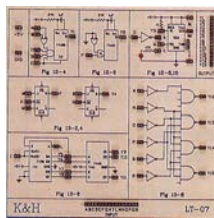
LT-04 EXPERIMENT 6



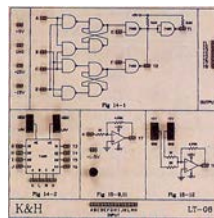
LT-05 EXPERIMENT 7,8,9



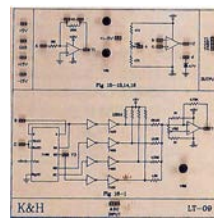
LT-06 EXPERIMENT 10,11



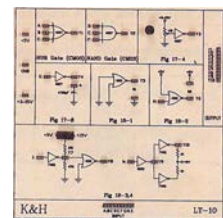
LT-07 EXPERIMENT 12,13



LT-08 EXPERIMENT 14,15



LT-09 EXPERIMENT 15,16



LT-10 EXPERIMENT 17,18

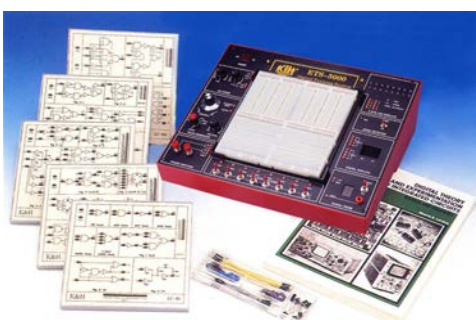
Features

1. With 10 modules including 18 experiments
2. Step-by-step exercises and application
3. Compatible with ETS-7000A digital-analog system and ETS-5000 advanced digital system
4. Modules can be changed easily
5. With experiment manual

Specifications

1. 10 experiment modules
2. The symbols of element for experimental circuit are printed on the modules.
3. Weight : 4kg

LT-01		LT-02		LT-03	LT-04
EXPERIMENT 1	EXPERIMENT 2	EXPERIMENT 3	EXPERIMENT 4	EXPERIMENT 5	EXPERIMENT 6
BASIC LOGIC FUNCTION	BOOLEAN ALGEBRA AND SIMPLIFICATION OF LOGIC EQUATION	DEMORGANS THEOREM	TTL NAND/NOR GATE-DEFINITIONS AND OPERATION	THE EXCLUSIVE-OR AND ITS APPLICATION	FULL-ADDER AND FULL-SUBTRACTOR
LT-05			LT-06		LT-07
EXPERIMENT 7	EXPERIMENT 8	EXPERIMENT 9	EXPERIMENT 10	EXPERIMENT 11	EXPERIMENT 12
BISTABLE AND FLIP-FLOP	BINARY COUNTERS AND THE BINARY NUMBER SYSTEM	DEVIDE-BY-N COUNTERS AND THE BINARY NUMBER SYSTEM	SHIFT REGISTERS AND RING COUNTERS	PULSE FORMING AND SHAPING THE SCHMITT TRIGGER	INTERATED-CIRCUIT TIMERS-THE 74122, 74121, 555
LT-07	LT-08		LT-09	LT-10	
EXPERIMENT 13	EXPERIMENT 14	EXPERIMENT 15	EXPERIMENT 16	EXPERIMENT 17	EXPERIMENT 18
DECODING AND ENCODING	RANDOM-ACCESS MEMORY (RAM)-SCRATCH PDA MEMORIES	THE OPERATIONAL AMPLIFIER	DIGITAL-TO-ANALOG (D/A)AND ANALOG-TO-DIGITAL (A/D)CONVERSION	COMPLEMENTARY SYMMETRY MOS (CMOS)-PRINCIPLES AND CHARACTERISTICS	COMPLEMENTARY SYMMETRY MOS (MOS)-TTL INTERFACE

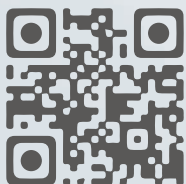


Compatible With ETS-5000 Advanced Digital System

KNOWLEDGE AND HOPE



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